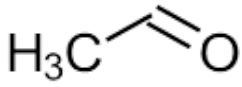
CAS 75-07-0

Acetaldehyde

C_2H_4O

VERMONT DEPARTMENT OF HEALTH



Summary of Health Effects

Acetaldehyde causes cancer in animals and may cause cancer in humans. It also puts unborn babies at risk for fetal alcohol disorders.

How is acetaldehyde used?

Acetaldehyde is used in leather tanning, glues, paper production, cosmetics, plastics, and as a food flavoring agent.[1-4]

Acetaldehyde can be produced as a result of many natural processes, including combustion and photo-oxidation (alterations to chemicals using light energy).[1] It is an intermediate product of respiration in many plants including broccoli, apples, coffee, onions, peaches, cranberries and cherries.[2]

Toxicity: What are its health effects?

The National Toxicology Program concluded that acetaldehyde is reasonably anticipated to be a carcinogen.[1] The International Agency for Research on Cancer found sufficient evidence that acetaldehyde is a carcinogen for animals.[2] The Environmental Protection Agency (EPA) classified acetaldehyde as a probable human carcinogen-based on inhalation exposure, which caused nasal and laryngeal tumors in rats and hamsters, respectively.[3]

During digestion, ethanol (alcohol) is broken down into acetaldehyde, then converted to acetic acid in mammals.[2]

Exposure: How can a person come in contact with it?

A person can come in contact with acetaldehyde by breathing in contaminated air and smoke, or by eating foods containing it.

Acetaldehyde has been identified in the EPA's Urban Air Toxics Strategy as one of 33 hazardous air pollutants that present the greatest threat to public health in urban areas.[5]

The 2014 National Health and Nutrition Examination Survey (NHANES) report did not include data for acetaldehyde.

Health Effects for Pregnant Women

Alcohol is passed to the fetus through the umbilical cord. Because developing babies do not yet have the enzymes required for the conversion of acetaldehyde to acetic acid, they are at risk for fetal alcohol spectrum disorders.[6]

References

1. U.S. Department of Health and Human Services, National Toxicology Program (2014). *Report on carcinogens, thirteenth edition*. Retrieved from ntp.niehs.nih.gov/ntp/roc/content/profiles/acetaldehyde.pdf

2. World Health Organization, International Agency for Research on Cancer (1999). *IARC Monograph on the evaluation of carcinogenic risks to humans, volume no 71: Re-evaluation of some organic chemicals, hydrazine and hydrogen peroxide, part two*. Retrieved from monographs.iarc.fr/wp-content/uploads/2018/06/mono71.pdf
3. U.S. Environmental Protection Agency (1991). *Integrated Risk Information System (IRIS) for acetaldehyde*. Retrieved from cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=290
4. Ali, F. and Persaud, T. (1988). Mechanism of fetal alcohol effects: role of acetaldehyde. *Experimental Pathology*, 33, 17-21. Retrieved from www.ncbi.nlm.nih.gov/pubmed/3384064
5. U.S. Environmental Protection Agency, National Air Toxics Program: Integrated Urban Strategy (1999). *List of the 33 urban air toxics*. Retrieved from www2.epa.gov/sites/production/files/2014-08/documents/07061999-fs-air-toxics-strategy.pdf
6. Centers for Disease Control and Prevention, National Center on Birth Defects and Developmental Disabilities, Division of Birth Defects and Developmental Disabilities (2014). *Fetal alcohol spectrum disorders.* Retrieved from www.cdc.gov/ncbddd/fasd/facts.html